

## On two new Species of Northern Amphipoda.

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(PLATES 27 &amp; 28.)

[Read 21st November, 1907.]

THE species under consideration are derived from collections made by the *Goldseeker*, in connexion with the International investigation of the North Sea. For permission to lay the figures and descriptions before the Linnean Society I am indebted to Prof. D'Arcy W. Thompson, C.B., F.L.S., who is the representative for Scotland on the International Committee. In writing to me on the subject, Prof. Thompson observes: "It is remarkable how few new species turn up nowadays in our collections: we seem to be getting very near to the bottom of our local fauna." In the present case the new forms are of a rather striking character, so that, though they are small, it is a little surprising that they should have escaped earlier notice. Not only are they new, but, as will be seen, one of them makes an appeal that the family to which it obviously belongs should submit to a small change in its definition in order to receive the new comer. Similarly, the other asks for hospitality in a genus which can only give it a welcome by slightly enlarging its previous boundaries.

Both species come from a considerable depth. Both are apparently quite blind. Both are armed with numerous processes; and both, as preserved, are colourless and to some extent pellucid, these characters making it not a little difficult to disentangle the exact boundary lines of the various parts and appendages.

## Family PARAMPHITHOIDÆ.

1906. *Paramphithoidæ*, Stebbing, Das Tierreich: Amphipoda Gammaridea, Lieferung 21, p. 320.

As defined in the reference given above, the family contained the three genera, *Epimeria*, Costa, the much-restricted *Paramphithoe*, Bruzelius, and *Actinacanthus*, Stebbing. To embrace the new genus here instituted the definition requires to be modified only in one particular. Instead of affirming absolutely that the integument is indurated and the side-plates rigid, it should claim this solid firmness only as *usually* present.

## LEPECHINELLA, nov. gen.

Integument not indurated, dorsally processiferous. Head rostrate. Accessory flagellum of first antennæ rudimentary. Mandibles well developed; palp slender, with second joint much longer than first or third.

Inner plate of first maxillæ small, with only two apical setæ. Inner plate of second maxillæ shorter and narrower than the outer, not setose along the inner margin. First and second gnathopods with fifth joint longer than sixth. Peræopods 1-5 long and slender, with second joint narrow. Third uropods with short peduncle and long rami. Telson deeply emarginate.

The name is derived from that of the Russian author Lepechin, who in 1780 described and figured *Oniscus cuspidatus*, from the White Sea. Though that species is involved in some obscurity, it no doubt belongs to the genus *Paramphithoe*, and is in point of time the earliest member of the present family.

LEPECHINELLA CHRYSOTHERAS, sp. n. (Plate 27.)

The head has an acute horizontal rostrum, reaching about halfway along the first joint of the first antennæ. The first peræon segment is furnished with two upstanding dorsal processes, each succeeding segment with one such process, an additional little process preceding the principal one on the sixth and seventh segments. On each of the first three pleon segments two small processes precede the principal process, which points backward on the second and downward on the third segment. The fourth segment has a large single process and the fifth a minute one. All these processes are attended by several pliant setæ, a sort of streamers, perhaps designed to attract, and at any rate in the dead specimen successfully retaining, much disguising refuse. The side-plates of the peræon present considerable variation in shape, that of the first segment forming two subacute lobes directed much forward, that of the second having a single lobe prolonged sharply downward. The three following pairs are bilobed, with the front lobe the longer and somewhat acute. The side-plates of the seventh segment have a little tooth directed backward. The first three pleon segments have the postero-lateral angles acute, those of the second and third segments being upturned.

No eyes could be perceived. The first antennæ have the first joint moderately long and stout, the second longer and much more slender, the third less than half as long as the first; the flagellum a little longer than the peduncle, eighteen-jointed. The secondary flagellum is very small, one-jointed, half as long as the first joint of the principal. The second antennæ are a little longer than the first, the gland-cone small, the fourth joint equal to the second joint of the first antennæ, the fifth considerably longer, somewhat longer than the ten-jointed flagellum.

The lips were not successfully dissected, so that it is uncertain whether the median part of the lower lip was bilobed, or only one-lobed as given in the figure.

The mandibles are normal, the cutting-edge dentate, the accessory plate, as usual, more strongly dentate in one member of the pair than in the other;

the spine-row contains about six strong spines; the molar is well developed; the palp very slender, with its second joint much longer than either the first or third, which are subequal one to the other, the third carrying a few long setæ. The first maxillæ have a slight inner plate with two apical setæ, the outer plate armed with nine spines; the palp with large second joint armed on its broad apex with six teeth and a spine in one member, and with six spines in the other member of the pair, a difference which has been noticed in the family Atylidæ (see Das Tierreich, Amph. Gamm. p. 334). The second maxillæ have the inner plate shorter and much narrower than the outer, in both the setæ are confined to the distal margin. The maxillipeds have the inner and outer plates normal, the outer with about ten fringing spines, of which those on the inner edge are dentiform. The second joint of the palp is the longest, but it does not reach the end of the outer plate.

The first and second gnathopods are similar in structure, slender, setose; the fifth and sixth joints longer in the second pair than in the first, which has the hand distally rather more widened with a less oblique palm. The five pairs of peræopods are all much alike, with the second joint slender, the fingers long and curved, the fourth joint longer than the fifth in the first two pairs, but shorter than it in the three following pairs.

The first uropods have the peduncle long and the rami long, the outer longer than the inner. The second pair have the peduncle longer than the rami, of which the outer is the shorter. In the third pair the peduncle is very short, the rami long, the inner the shorter. The telson is short, little longer than broad, emarginate almost to the centre, each acute apex carrying a long upstanding seta. The specimen as preserved is colourless.

Length from apex of rostrum to end of telson, between 5 and 6 mm.

*Locality.* Lat. 59° 41' N., long. 3° 0' W., from a depth of 850 m.

The specific name is derived from the Greek word χρυσοθήρας, meaning a searcher for gold, in allusion to the name of the vessel, the *Goldseeker*, which was instrumental in bringing the typical specimen to light.

#### Family EUSIRIDÆ.

1888. *Eusiridæ*, Stebbing, 'Challenger' Amphipoda, Reports, vol. xxix. p. 953.

1893. *Eusiridæ*, Sars, Crustacea of Norway, vol. i. p. 414.

1906. *Eusiridæ*, Stebbing, Das Tierreich, Amph. Gamm., Lieferung 21, pp. 338, 728.

The definition of the family given under the last reference includes the character that the mandibles have the third joint of the palp elongate. The new species here added to the family is in this respect exceptional, so that the statement must now be that the third joint in question is *generally* elongate.



## Genus RHACHOTROPIS, S. I. Smith.

1871. *Tritropis*, Boeck, Forh. Selsk. Christiania, 1870, p. 158.

1883. *Rhachotropis*, S. I. Smith, Proc. U.S. Nat. Mus. vol. vi. p. 222.

1906. *Rhachotropis*, Stebbing, Das Tierreich, Amph. Gamm., Lieferung 21, pp. 347, 729.

The species here included in the genus differs from its congeners and, so far as known, from the rest of the family, by having the third joint of the mandibular palp much shorter than the second. Also the postero-lateral margins of the third pleon segment cannot well be described in the terms which suit the other species. Nevertheless the whole sum of its characters seems to demand that this form should not, under existing circumstances, be separated from *Rhachotropis*. The telson indeed has only a small apical notch instead of the more or less prolonged slit which is usual, but it shares the character of its telson with *R. gracilis*, Bonnier, and *R. kergueleni*, Stebbing, in both of which, on the other hand, the third joint of the mandibular palp is greatly elongated. The new form is apparently blind, but so are several other species in this genus. It agrees with a certain number in having a microscopically two-jointed accessory flagellum to the first antennæ, and it should here be noticed that this is the case with *R. grimaldii*, Chevreux. That author's earlier statement on this point I have adopted in 'Das Tierreich,' without noticing his clear correction of it in his 'Résult. Camp. Monaco,' vol. xvi. p. 69, pl. 9. fig. 1 (1900). In other minute details, as well as in many obvious characters, it will be admitted, I think, that the new species is closely tied to this genus, although marked off from its companions by several striking features of its own.

## RHACHOTROPIS PALPORUM, sp. n. (Plate 28.)

Rostrum rather short. Peræon broad, a little hairy and transversely rugose, without teeth or processes, except that the lower hind angles of the seventh segment are produced acutely backward. The anterior angles of the first segment are produced subobtusely forward. The first three pleon segments are large, projecting in seven teeth a-piece, of which the medio-dorsal tooth and the postero-lateral pair are short, the subdorsal pair of great length in the first and second segments. In these segments the pair between the subdorsal and postero-lateral pairs are minute, but in the third segment they are more obvious, while their neighbours are comparatively reduced. The second to the fifth segments show a median carina, the fourth segment having a small lateral pair of teeth and a very small median tooth to the rear between two rounded projections. The first three segments slope forward below the postero-lateral teeth. The side-plates of the peræon are not very

deep, the first very shallow, produced acutely forward, the seventh produced backward in a small tooth.

No eyes were perceived. The antennæ of the single specimen, a female, agree in armature with those figured by Sars for *R. helleri* (Boeck), both pairs having a great number of the ciliated hairs usually regarded as auditory. In the first antennæ the first joint is stouter and a little longer than the second, each having apical teeth, the third joint is about two-fifths the length of the second. The flagellum is scarcely as long as the peduncle, ten- to eleven-jointed, armed with filaments. The accessory flagellum is extremely minute, with an insignificant second joint. In the second antennæ the gland-cone is conspicuous, the third joint is about as long as the first in the first antennæ, the second joint is decidedly longer, very slender; the flagellum is seventeen-jointed, yet not quite so long as the peduncle.

The upper lip has an almost smooth convex distal margin, flanked by a pair of whiskers, from the extremities of which extend a concave line of short hairs. The lower lip was not distinctly made out, but appears to agree with that figured by Sars for *R. helleri*.

The mandibles have a strong cutting-plate, that on the left ending in a solid tooth, that on the right bidentate. The accessory plate on the left has an edge divided into six teeth; this plate on the right is shorter, with only four teeth, two of which are notably smaller than the other two. There are four to five spines in the spine-row. The molar is of moderate size. The palp is much shorter than the massive trunk, its third joint tipped with three spines, its length twice that of the first and about half that of the sparsely-spined second joint. This character remarkably distinguishes the present species from others in this genus, which have the third joint of the palp strongly spined and longer than the second joint. There is nothing about the specimen to suggest that the palps are abnormal.

The first maxillæ have a large inner plate carrying two small setæ at the distal end of its inner border. The outer plate has nine slender denticulate spines. The palp is long, its first joint twice as long as broad, about two-fifths as long as the sparsely-setose second joint. In the second maxillæ the inner plate is rather shorter and broader than the outer, both with setæ confined to their broad apical borders. The maxillipeds have the inner plates short and broad, the truncate distal margin carrying three spine-teeth and two more slender spines; the outer plate is broad, with very numerous spines round the distal and inner margins. The palp is greatly elongated, and the long second joint has a peculiar appearance because the inner edge is not as usual continuous in a straight line or convex curve, but distally for more than half the total length concave. The third joint is also curved; this

joint is strongly spined on its inner surface. The finger is long, but a little shorter than the third joint.

The first and second gnathopods are characteristic of the genus, with their great oval hands and long fingers closing over the very oblique convex spine-fringed palms. The second gnathopod is larger than the first, and has the process of the wrist somewhat acutely produced. The first and second peræopods are slender and not exactly alike, since in the first pair the sixth joint is rather longer than the fifth and rather shorter than the seventh, but in the second pair it is rather shorter than either the fifth or the seventh. The three following pairs have the second joint expanded though not very strongly, but they agree with one another in having an acute projection of the hind margin at about the middle. Something similar to this is found in the third and fourth peræopods of *R. aculeata* (Lepechin), but in that species it disappears from the fifth pair, whereas in the present species in the fifth pair it is greatly accentuated, so that by this character alone the new form can be distinguished from all hitherto described members of the genus. As in other species, the fourth joint is short in the first and second peræopods but long and spinose in the remaining three pairs. The last three joints of the third and fifth pairs in our specimen were missing.

The marsupial plates attached to the second gnathopods and the first two pairs of peræopods are voluminous, but those on the third pair are narrow. In all, the fringes of the margin were rather scanty. The branchial vesicles are rather large on the second gnathopods and first two pairs of peræopods, diminishing on the next two, and on the fifth pair very small, being here transversely instead of longitudinally oval.

The pleopods are strong, with two slender coupling-hooks on the peduncle, five or six cleft spines to the inner ramus, and about twenty-three joints to each of the rami. The uropods have lanceolate rami, those of the first pair rather shorter than the peduncle, those of the other two pairs longer than their respective peduncles; the inner ramus of the second pair considerably longer than the outer and longer than any of the other rami. The telson is elongate, tapering, as long as the peduncle of the first uropod, with a pair of ciliated hairs or setæ near the base, the apices on each side of the small cleft acute.

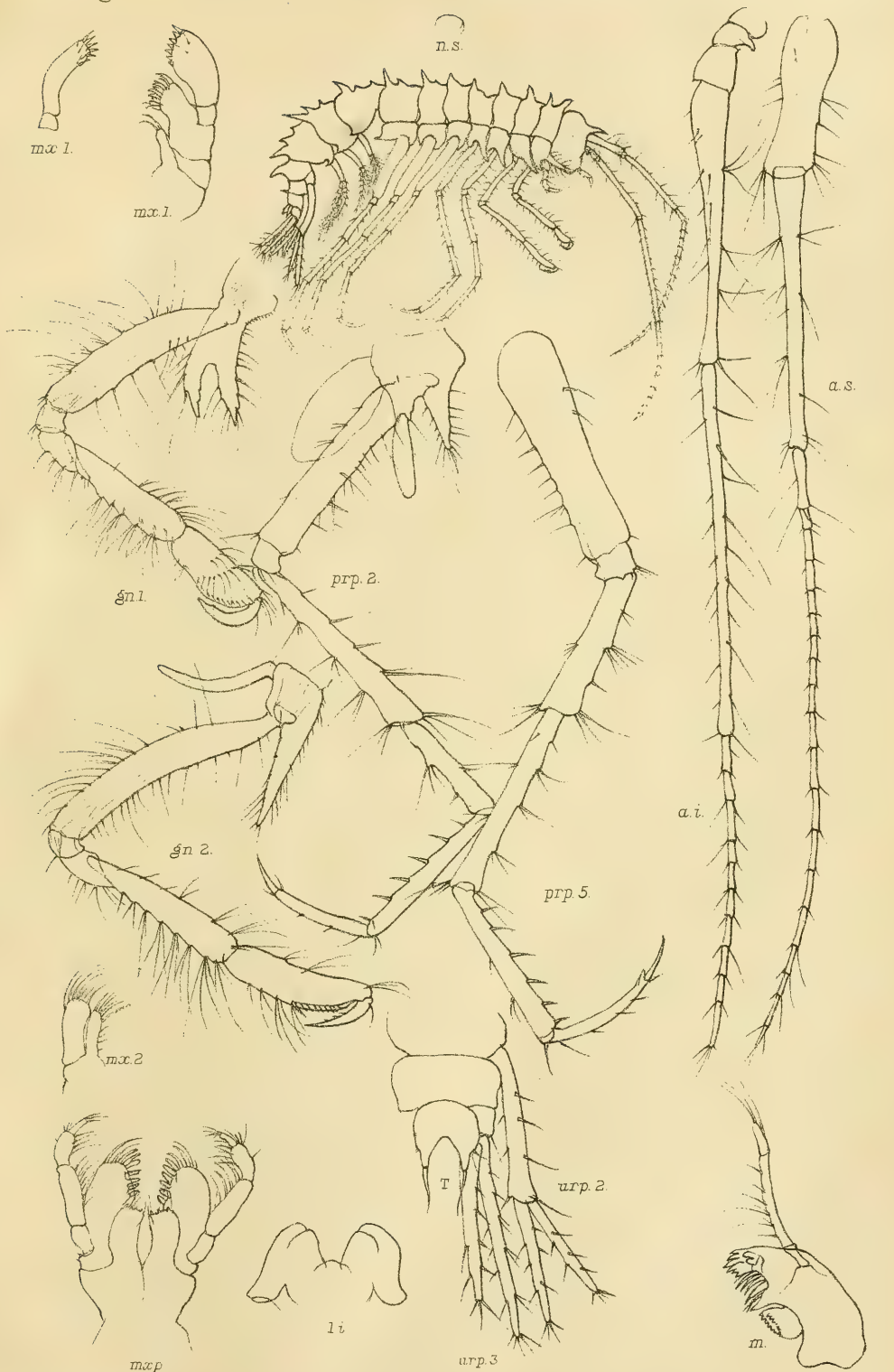
The specimen in spirit colourless.

Length, from tip of rostrum to end of telson, 13.5 mm.

*Locality.* Lat. 59° 36' N., long. 7° 0' W., from a depth of 400 m.

The specific name calls attention to the differential characters in the palps of the mandibles and maxillipeds.

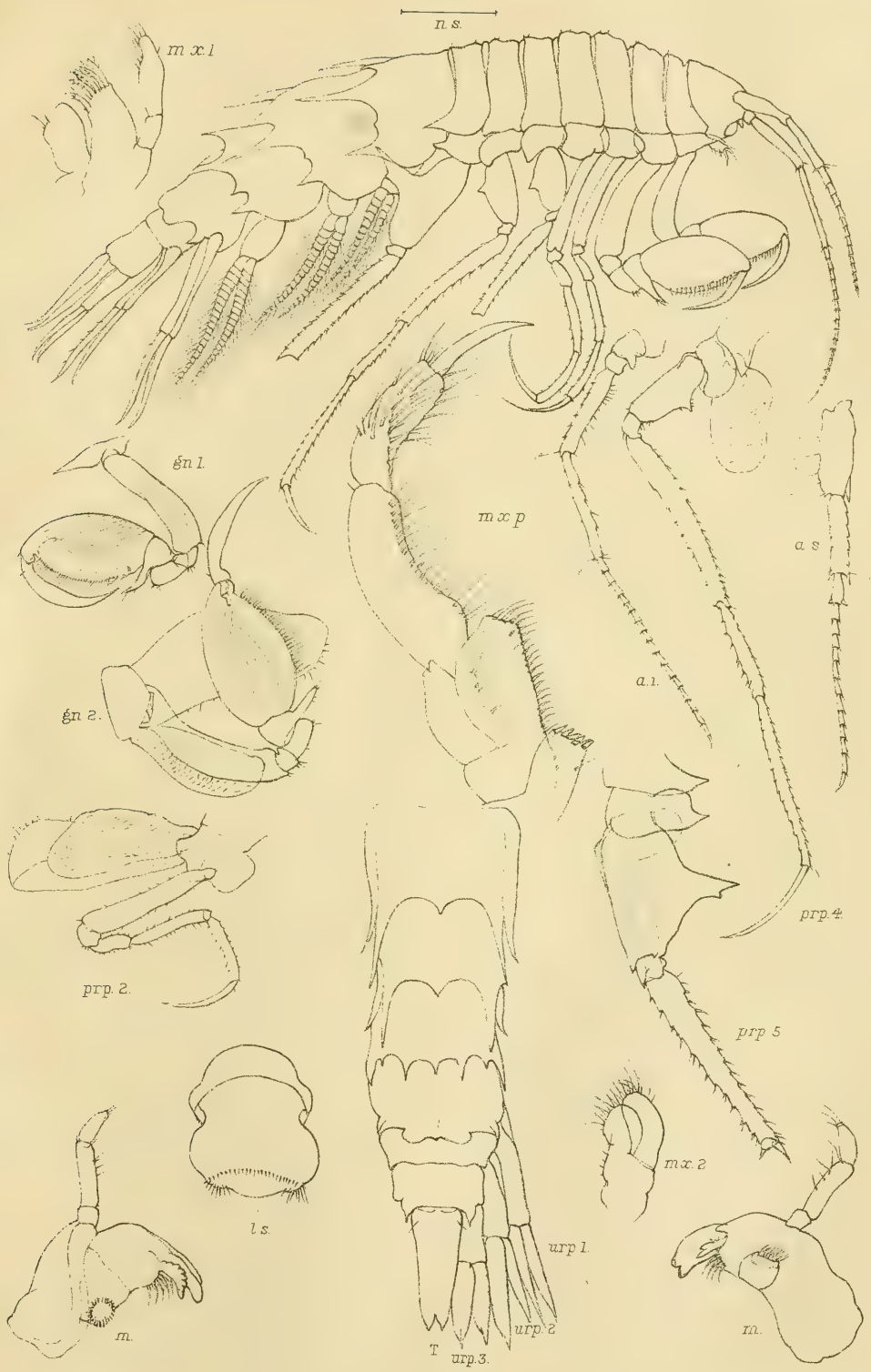




Del TRR. Stebbing

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LEPECHINELLA CHRYSOTHERAS n. g. et sp.



Del. T.R.R. Stebbing

J.T. Rennie Reid Lith. Edin.

RHACHOTROPIS PALFORUM n. sp.



## EXPLANATION OF THE PLATES.

## PLATE 27.

*Lepechinella chrysotheras*, n. g. et sp.

*n.s.* Line indicating natural size of specimen figured below in lateral view.

*a.s., a.i.* First and second antennæ.

*m., li., mx.1, mx.1, mx.2, mxp.* Mandible, lower lip, one of the first maxillæ and separated palp of the other, second maxilla, maxillipeds.

*gn.1, gn.2, prp.2, prp.5.* First and second gnathopods, second and fifth peræopods.

*urp.2, 3, T.* Second and third uropods and telson in dorsal view.

The mouth-organs are magnified uniformly on a higher scale than the other appendages.

## PLATE 28.

*Rhachotropis palporum*, sp. n.

*n.s.* Line indicating natural size of specimen figured below in lateral view.

*a.s., a.i.* First and second antennæ.

*l.s., m., m., mx.1., mx.2, mxp.* Upper lip, mandibles, first and second maxillæ, and maxilliped.

*gn.1, gn.2, prp.2, 4, 5.* First and second gnathopods, second and fourth and part of fifth peræopods.

*urp.1, 2, 3, T.* The pleon in dorsal view, with the first, second, and third uropods and telson in position.

The mouth-organs are magnified uniformly on a higher scale than the other appendages, but in conformity with the lower scale of the preceding plate.

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